

Chapter 1 – TERMS OF REFERENCE AND PROGRAMME OF WORK

by

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1.1 ABSTRACT

The activities of the HFM-057/RTG-009 on research and development in the area of biotechnology as applied to the assessment of toxic hazards in operational environments are outlined. These environments are increasingly dangerous from a toxic hazards point of view while at the same time societal acceptance levels are increasingly becoming lower. The activities of the first term (“protection against adverse effects of toxic hazards”) and the new tasks for the second term (“biotechnologies for assessment of toxic hazards in operational environments”) of the working group are summarized.

1.2 TERMS OF REFERENCE

1.2.1 Origin

1.2.1.1 Background

Public opinion in today’s society demands an increasing level of safety and health care for military personnel under operational and peacetime conditions, not restricted to the traditional military threats such as battle injury and infectious diseases. Potential harm from toxic exposure has been recognised increasingly as a threat, in Peacekeeping and Peace Enforcement operations, as well as in classical combat. Troops may be exposed to harmful chemicals as a result of; inadequate environmental protection in the area of operations; industrial accidents; sabotage; or the intentional or unintentional actions of enemy or friendly forces.

Traditionally, the medical protection of soldiers against non-battle injuries has been concentrated on the prevention of infectious diseases. Consequently, risk assessment of non-weaponized toxic hazards in operational areas and on the battlefield has been relatively neglected. Pertinent toxicological research should involve sources and levels of exposure, and the consequent effects thereof on the military. Eventually, this research should better protect health and ensure mission performance of military personnel through improved risk management. Furthermore, the risk of post-deployment illness and disability, resulting from exposures during deployment, will be reduced.

Given these concerns, it is recommended that an explicit effort to identify, quantify and minimize the effects of toxic exposures, especially those which are characteristic for the military environment should be pursued. Such an effort could serve as a venue for initiation and effective co-ordination of military-toxicological research by experts.

In recent years new (bio)technologies have emerged that may be relevant to address the problems mentioned above. The added value of these biotechnologies should therefore be explored.

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1.2.1.2 Justification

An increased level of safety and health care for military personnel under operational conditions will improve combat readiness and effectiveness, and therefore the probability of successful mission completion. An additional (non-operational) benefit is that risk of post-deployment illness and disability, resulting from exposures during deployment, will be reduced.

1.2.2 Objectives

HFM-057/RTG-009 will evaluate new and emerging biotechnologies to assess toxic hazards and exposure under operational conditions. This evaluation should lead to identification of areas in which coordinated research efforts are required.

The specific goal of HFM-057/RTG-009 is to facilitate the communication and coordination of environmental and occupational health research and toxicological research among the participating countries. This goal will be realized through regular meetings of the Task Group. More specifically, the Task Group will:

- Evaluate the potential benefits of emerging biotechnologies to protect health and mission performance;
- Provide input to improve guidelines for health and mission performance risk assessment of military-relevant compounds in the operational environment;
- Identify knowledge gaps in inhalation toxicology of military-relevant compounds;
- Identify knowledge gaps in neurobehavioral toxicology of military-relevant compounds and other environmental stressors;
- Identify and propose the development of (specific) biomarkers for diagnostic and prognostic purposes;
- Promote the development of biomarkers of susceptibility, such as polymorphisms;
- Promote investigation of the interactive effects of physical (e.g. heat) and psychological stress on the toxicity of military-relevant compounds;
- Evaluate new methods for studying the toxic hazards of exposure to military-relevant mixtures or combinations of exposures to multiple stressors;
- Consider technologies (e.g. molecular epidemiology) for assessment of health risks through the life cycle of military personnel;
- Identify the unique risks of exposure to military-relevant compounds in confined spaces;
- Promote the importance of health risk communications research; and
- Increase awareness of meetings relevant for the Task Group.

1.2.2.1 Products/Deliverables

- The major product will be a technical report on biotechnologies for assessment of toxic hazards in the operational environment.
- The Task Group will publish an inventory and critical evaluation of existing databases for biomarkers for prognostics and diagnostics and field relevant assessment methods.

- At least one workshop on biotechnologies will be organized and conducted by the Task Group.
- The Task Group will publish the key findings of the Task Group in relevant open literature journals.

HFM-057/RTG-009 is authorized to conduct its actions under these Terms of Reference from January 2004 until December 2006.

I) RESOURCES

A) Membership

Military environmental and occupational health research is conducted in participating NATO and PfP countries. Representation in HFM-057/RTG-009 by participating countries should be by environmental and occupational health researchers, toxicologists, physicians, neuroscientists, biochemists, chemists, biologists, and other scientific researchers having experience in the toxicology of relevant compounds and/or subjects.

B) National and/or NATO resources needed

Special needs of the Task Group should be limited to the use of appropriate secure facilities for the conduct of executive and scientific meetings.

C) RTA resources needed

None foreseen.

II) SECURITY CLASSIFICATION LEVEL

Information exchanges between members of the Task Group may be conducted up to and including the NATO RESTRICTED level.

III) PARTICIPATION BY PARTNER NATIONS

In principle, the Task Group will be open to participation of Partnership-for-Peace (PfP), Mediterranean Dialogue Initiative (MDI), and other nations.

IV) LIAISON

Liaison by members of the Task Group may be conducted with the NBC Medical Working Party, with Task Group 4 on Prophylaxis and Therapy against Chemical Agents, and with other relevant RTA study groups regarding work on environmental sampling/analysis and biomonitoring, especially the group on sampling and identification.

1.3 PROGRAMME OF WORK

The potential benefits to the protection of health and mission performance of emerging biotechnologies will be evaluated by the Task Group.

The Task Group will provide input to improve guidelines for health and mission performance risk assessment of military-relevant compounds in the operational environment.

Knowledge gaps in inhalation toxicology of military-relevant compounds will be identified.

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Knowledge gaps in neurobehavioral toxicology of military-relevant compounds and other environmental stressors will be identified.

The Task Group will identify and propose the development of specific biomarkers for diagnostic and prognostic purposes.

The Task Group will promote the development of biomarkers of susceptibility, such as polymorphisms.

The Task Group will promote investigation of the interactive effects of physical (e.g. heat) and psychological stress on the toxicity of military-relevant compounds.

New methods for studying the toxic hazards of exposure to military-relevant mixtures or combinations of exposures to multiple stressors will be evaluated.

Technologies (e.g. molecular epidemiology) for assessment of health risks through the life cycle of military personnel will be considered.

The unique risks of exposure to military-relevant compounds in confined spaces will be identified.

The Task Group will promote the importance of health risk communication research.

In order to fulfil the Programme of Work, the Task Group will meet twice a year in the various participating nations.

Deliverables – The Task Group will produce:

- A comprehensive technical report on biotechnologies for assessment of toxic hazards in the operational environment. This is the major deliverable of the Task Group.
- An inventory and critical evaluation of existing databases for biomarkers for prognostics and diagnostics and field relevant assessment methods.
- At least one workshop on biotechnologies.
- Publication(s) of the key findings of the Task Group in relevant open literature journals.
- Technical reports on specific subjects as considered opportune.

(This TOR and POW were written at the start of the current committee effort on March 19, 2004).